Docket No.: GOT-0011 (85967-0011) PATENT APPPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Zongxuan JIN et al. Confirmation No.: 1362

Application No.: 09/863,316 Group Art Unit: 1614

Filed: May 24, 2001 Examiner: Donna A. Jagoe

For: SKIN CANCER PREVENTIVE AGENT

APPELLANT'S BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is in furtherance of the Notice of Appeal, filed in this case on August 21, 2003.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate.

This brief contains items under the following headings as required by 37 C.F.R. § 1.192 and M.P.E.P. § 1206:

I. Real Party In Interest
II Related Appeals and Interferences
III. Status of Claims
IV. Status of Amendments
V. Summary of Invention
VI. Issues

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Kabushiki Kaisha Aioi Hakko of Aichi-ken, Japan and Sieren Kabushiki Kaisha of Fukui-ken, Japan. An assignment of all rights in the present application to Kabushiki Kaisha Aioi Hakko of Aichi-ken, Japan and Sieren Kabushiki Kaisha of Fukui-ken, Japan was executed by the inventors and recorded by the U.S. Patent and Trademark Office at **reel 012197, frame 0954.**

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 8 claims pending in application. Claims 5-12 stand finally rejected, and no claims are currently allowed.

Accordingly, the Appellants hereby appeal the final rejection of claims 5-12, which are presented in the Appendix.

B. Current Status of Claims

1. Claims canceled: 1-4
2. Claims withdrawn from consideration but not canceled: none
3. Claims pending: 5-12
4. Claims allowed: none
5. Claims rejected: 5-12

C. Claims On Appeal

The claims on appeal are claims 5-12

IV. STATUS OF AMENDMENTS

An Amendment adding claims 5-12 was filed subsequent to the first rejection of February 12, 2002 (Paper No. 3). A subsequent final rejection of August 12, 2002 (Paper No. 7) included a restriction requirement, constructively electing original claims 1-4. A Request for Continued Examination was filed along with a Preliminary Amendment canceling claims 1-4. An Amendment to claims 5, 7-9 and 11-12 was filed subsequent to a non-final Office Action rejecting all claims of November 20, 2002 (Paper No. 10). No Amendment after the final rejection of May 21, 2003 (Paper No. 13) that is the subject of this Appeal was filed.

The claims in the Appendix represent the state of the claims as pending.

V. SUMMARY OF INVENTION

The presently claimed invention is a method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition containing sericin, or a hydrolysis product of sericin. See Specification at page 2, lines 11-20. The weight average molecular weight of the sericin is from 5,000 to 100,000. See Specification at page 2, lines 23-24. The sericin is naturally-occurring, and is extracted or physically separated from the cocoon or raw silk of silkworms by any suitable method known in the art. See Specification at page 2, lines 11-12 and 30-32 and page 3, line 32 to page 4, line 4. Particularly superior inhibitory action is obtained by isolating and purifying the extract to a preferred weight average molecular weight from 5,000 to 100,000. The sericin with superior inhibitory action is "high molecular weight." See Specification at page 4, lines 5-10. There are no restrictions on isolation and purification methods. See Specification at page 3, lines 10-18. The sericin may be mixed in a wide range of drugs, skin external preparations, over-the-counter drugs, cosmetics and lotions. See specification at page 4, lines 25-27. The amount of sericin added to the administered composition is normally 0.1 to 50 wt %, and preferably 0.5 to 5.0 wt %. See

Specification at page 4, lines 28-30. The sericin composition is administered by means selected from the group consisting of oral, intraperitoneal, intravenous and topical means. See Specification at page 4, lines 11-24.

An experiment was conducted using mice. See generally Specification at page 5, line 1 to page 7, line 7. A skin carcinogenesis initiator, 7,12-dimethylbenzen[α] anthracene (DMBA) was applied to the skin on the backs of a control group of the mice. Two weeks later, the carcinogenesis promoter, 12- o –tetradecanoyl-phorbol-13-acetate (TPA) was repeatedly applied at the same site to induce skin cancer. See Specification at page 5, lines 20-34.

In parallel, DMBA and TPA were applied in the same manner as the control group to mice of test groups. Different concentrations of sericin were applied to the different test groups. See Specification at page 5, line 3 to page 6, line 10.

The results depicted in Fig. 1 of the specification indicate that, although initial papilloma occurred in week 8 of the control group, initial papilloma did not occur until week 14 in test group A. An inhibition rate of 100% was demonstrated in test group B at week 20. On the basis of these findings, it was determined that the larger the sericin concentration (applied amount), the greater the prevention effect on the occurrence of mouse skin papilloma. See specification at page 5, line 20 to page 7, line 13.

VI. ISSUES

The issues presented for consideration in this appeal are as follows:

(1) Whether the Examiner erred in rejecting claims 5-12 under 35 U.S.C. §112, first paragraph, as allegedly not being enabled for inhibiting skin cancer?

(2) Whether the Examiner erred in rejecting claims 5-12 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,165,982 to Yamada et al.?

VII. GROUPING OF CLAIMS

For purposes of this appeal brief only, and without conceding the teachings of any prior art reference, the claims have been grouped as indicated below:

Claims 5-12 stand or fall together with respect to the §112 rejection.

Claims 5-12 stand or fall together with respect to the §103 rejections over Yamada et al. '982.

In Section VIII below, Applicant has included arguments supporting the separate patentability of each claim group as required by M.P.E.P. § 1206.

VIII. ARGUMENTS

In the Final Office Action of May 21, 2003, the following rejections were presented by the Examiner:

(i) 35 U.S.C. §112

The examiner rejected claims 5-12 under 35 U.S.C. §112, first paragraph as allegedly not being enabled for inhibiting skin cancer.

(ii) 35 U.S.C. §103

The Examiner rejected claims 5-12 under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,165,982 to Yamada et al.

(iii) Other

None

For at least the following reasons, Appellant submits that these rejections are both technically and legally unsound and should therefore be reversed.

(i) 35 U.S.C. §112

The examiner rejected claims 5-12 under 35 U.S.C. §112, first paragraph as allegedly not being enabled for inhibiting skin cancer. Appellants respectfully disagree, and accordingly, traverse this rejection.

Claim 5 recites a method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of sericin.

Claim 9 recites a method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of a hydrolysis product of sericin.

The Office Action alleges that while "enabling for inhibition of skin cancer in a mouse with a shaved back by chemically inducing cancer with 7,12-dimethylbenzen[α] anthracene (DMBA) and 12- o –tetradecanoyl-phorbol-13-acetate (TPA), it does not reasonably provide enablement for inhibiting skin cancer." See Paper No. 13 at page 2, last 2 lines to page 3, line 2. The Office Action further alleges that the "specification does not enable any person of skill in the art which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims."

Appellants wish to point out that Appellants' amendment did not necessitate a new grounds of rejection. The 112, 1st paragraph rejection is presented by the examiner for the first time, in this 4th office action. No issue of enablement was previously raised, and the examiner has not explained how amending the claims as suggested by the examiner now raises enablement issues. Therefore the finality of this rejection is improper.

Appellants also wish to point out that the Office Action which is the subject of this appeal has not presented a prima facie case of non-enablement. Specifically, the Office Action states that "Enablement is considered in view of the Wands factors (MPEP 2164.01(a))." However, In re Wands is limited to the issue of undue experimentation.

The examiner has the burden of showing that the application is non-enabling. In re Wright, 27 USPQ 2d 1510 (Fed. Cir. 1993). The specification is not required to teach each and every detail of the invention or to be a production specification. Complex experimentation is not undue if a person skilled in the art typically engages in such experimentation. In re Borkowski, 164 USPQ 642, 645 (C.C.P.A. 1970). Determination of whether an invention requires undue experimentation is not based on a single factor, but rather a conclusion reached by weighing many factors. These factors include, but are not limited to:

1. The breadth of the claims;
2. The nature of the invention;
3. The state of the prior art;
4. The level of one of ordinary skill;
5. The level of predictability in the art;
6. The amount of direction provided by the inventor;
7. The existence of working examples; and
8. The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

*In re Wands,*858 F.2d 731,737,8 USPQ2d 1400,1404 (Fed.Cir.1988)(reversing the PTO's determination that claims directed to methods for detection of hepatitis B surface antigens did not satisfy the enablement requirement). In *Wands*, the court noted that there was no disagreement as to the facts, but merely a disagreement as to the interpretation of the data and the conclusion to be made from the facts. *In re Wands,* 858 F.2d at 736-40, 8 USPQ2d at 1403-07. The Court held that the specification was enabling with respect to the claims at issue and found that "there was considerable direction and guidance " in the specification; there was "a high level of skill in the art at the time the application was filed;" and "all of the methods needed to practice the invention were well known." 858 F.2d at 740, 8 USPQ2d at 1406. After considering all the factors related to the enablement issue, the court concluded that "it would not require undue experimentation to obtain antibodies needed to practice the claimed invention." *Id.*, 8 USPQ2d at 1407. See MPEP 2164.01(a).

Still further, it is "improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole." 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407. See MPEP 2164.01(a).

Still further, the above factors "are illustrative, not mandatory, what is relevant depends on the facts." See Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ 2d 1016, 1027 (Fed. Cir. 1991), cert. denied, 502 U.S. 856 (1981).

The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. In Re Angstadt, 190 USPQ 214, 219 (C.C.P.A. 1976). (Emphasis added)

The office action alleges that all of the Wands factors have been considered, with the "most relevant factors" discussed in the office action. However, Appellants note that the most relevant factor of them all, the skill of one in the art, is not discussed. This will be addressed later.

To summarize the analysis of the office action, it is alleged that all that is taught by Appellants disclosure is the use of sericin to inhibit skin cancer in the backs of mice when the cancer is induced with DMBA and TPA. It is further alleged in the office action that actual inhibition of skin cancer caused by other factors such as UV exposure, heredity, chemicals other than DMBA and TPA, etc., allegedly "make practicing the claimed invention unpredictable in terms of inhibition of skin cancer in general." See Office Action at page 4, last paragraph.

The office action addresses the amount of experimentation needed in order to practice the invention by adding experimental limitations without showing support for those limitations. For example, the office action opines that "one skilled in the art would have to first envision a cause of the skin cancer, then a combination of appropriate pharmaceutical carrier, compound dosage, duration of treatment, route of administration, etc., and appropriate animal model system and test the combination in the model system to determine whether or not the combination is effective for inhibition of skin cancer." Office Action at page 5, lines 1-6. The office action then includes, no less than three times, that this testing will likely fail. Appellants object to this characterization as being no more than setting up a test for failure. Regardless, **this is not the test for enablement**.

If anything, **the office action clearly demonstrates that one of skill in the art would know how to arrive at a proper dosage and delivery system, and that this form of experimentation is routine, and therefore not "undue."**

Regarding the individual Wands factors, the claims are broad in that they include mammals, and do not specify the type or cause of the skin cancer. The claim is for a method of administering to the mammal in need of treatment for inhibition of skin cancer a composition containing sericin, or a hydrolysis product of sericin. While the mechanism of cancer inhibition may be complex, the nature of the invention is clearly recited in the claims. Regarding the state of the prior art, the examiner acknowledges that it is high for UV exposure, and allegedly underdeveloped for other causes. However, this simply leads to the conclusion that the invention is in fact novel, and patentable. In other words, if the examiner was unable to find and apply numerous references, or references related to the different causes of skin cancer treatment with sericin, this should lead to the conclusion that the invention is new and therefore patentable. Regarding the level of one of ordinary skill, it is clear the examiner has not considered the meaning of "undue experimentation." See, for example, In re Geerdes, 180 USPQ 789 (C.C.P.A. 1974)(a patent application is enabled even if some experimentation is required to make and use the invention). See, for example, Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481 (Fed. Cir. 1984) (a specification is enabled even if some experimentation may be necessary to practice the invention). Regarding the level of predictability in the art, even in unpredictable arts, a disclosure of every minute detail is not required. Regarding the amount of direction provided by the inventor, Appellants believe the examiner has clearly demonstrated this by giving a detailed summary example of how one of skill in the art would go about determining dosage/delivery method.

Regarding the existence of working examples, Appellants have disclosed in the specification an experiment, resulting in a working example, with mice. The office action appears to require working examples for each and every mammal for each and every cause of each and every type of skin cancer. It is understood that compliance with the enablement requirement o §112, first paragraph, **does not require or mandate that a specific example be disclosed**. The specification need not contain a working example if the invention is otherwise disclosed in such a manner that

one skilled in the art would be able to practice the invention without undue experimentation. In re Borkowski, 164 USPQ at 645.

Regarding the quantity of experimentation needed to make or use the invention based on the content of the disclosure, Appellants assert that this would be the nominal amount of experimentation for the determination of cancer inhibition protocols, and therefore **does not** rise to the level of undue experimentation.

In summary, Appellants have demonstrated by example the invention, and specific application of the invention, for example in a topical cream, would not require undue experimentation in order to determine the amount of sericin needed for a given application or type of skin cancer.

Accordingly, a prima facie case of non-enablement under §112, first paragraph has not been established, and the rejection of claims 5-12 should not be sustained.

(ii) 35 U.S.C. §103

The Examiner rejected claims 5-12 under 35 U.S.C §103(a) as allegedly being obvious over U.S. Patent No. 6,165,982 to Yamada et al. Appellants respectfully traverse this rejection.

Claim 5 recites a method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of sericin.

Claim 9 recites a method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of a hydrolysis product of sericin.

Yamada et al. '982 disclose the use of sericin as antioxidants and tyrosinase inhibitors. Antioxidants and tyrosinase inhibitors are used to prevent discoloration in foods and to prevent blotching of skin color caused my melanin formation.

The office action acknowledges that Yamada et al. '982 fail to teach the use of sericin to inhibit skin cancer. Yamada et al. '982 teach that sericin is medicinally useful as an antioxidant

(abstract) and that naturally-derived antioxidants are useful in countering the oxidative effects of lipid peroxides which are known cancer causing agents (col. 1, lines 15 to 33). Even though Yamada et al. '982 teach that sericin can be used to counter the ill effects of lipid peroxides, which effects can include cancer, there are myriad types of cancer with very different preventative treatments for each. Further, when speaking of cancer generally it is understood that most anything that improves the overall health of a patient, i.e., vitamins, exercise, healthy diet, low stress, etc. would be beneficial in terms of combating the possibility of the onset of some sort of cancer.

Skin cancer is a very particular type of cancer for which specific therapies are widely published due to the wide spread nature of the cancer throughout much of the earth's population. Consequently, documents that mention **cancer generally** are just slightly more pertinent to the art of inhibiting skin cancer than documents that mention another disease. **The mere suggestion of the use of sericin as a cancer preventative agent due to its antioxidant properties does not suggest to a person skilled in the particular art of treating patients in need of inhibiting skin cancer that sericin would be beneficial for such a relatively narrow group of patients.**

U.S. patent law provides that "[w]hoever invents or discovers any new and useful process...or any new and useful improvement thereof, may obtain a patent thereof...", subject to the other requirements of the law. *See* 35 U.S.C. §101. The term "process" means "process , art, or method, and includes **a new use of a known** process, machine, manufacture, **composition of matter, or material."** 35 U.S.C. §100(b)(emphasis added).

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, *absent some teaching, suggestion or incentive supporting the combination*. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. The prior art of record fails to provide any such suggestion or incentive. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). In this case, the office action has admitted that the only applied reference, Yamada et al. '982, do not disclose, teach or suggest the use of sericin as a skin cancer preventative agent.

Accordingly, the Examiner has not established a prima facie case of obviousness, the rejection of the claims should not be sustained.

Still further, "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992). The office action has not established that one of ordinary skill would use the sericin of Yamada et al. '982 as a treatment for skin cancer. Accordingly, a prima facie case of obviousness has not been established, and the rejection should not be sustained.

Furthermore, claims 6-8, being dependent upon claim 5, and claims 10-12, being dependent upon claim 9, are also allowable for the reasons above. Moreover, these claims are further distinguished by the materials recited therein, particularly within the claimed combination. Accordingly, all §103 rejections should not be sustained.

(iii) Other

None

Conclusion

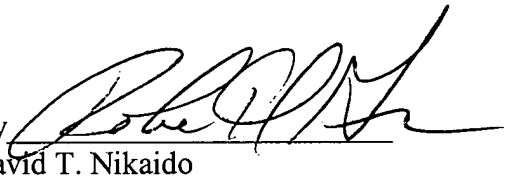
In view of the foregoing reasons, Appellant submits that the final rejection of claims 5-12 is improper and should not be sustained. Therefore, a reversal of the Final Rejection of May 21, 2003, as to claims 5-12, is respectfully requested.

IX. CLAIMS INVOLVED IN THE APPEAL

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

Dated: October 21, 2003

Respectfully submitted,



By
David T. Nikaido
Registration No.: 22,663
Robert S. Green
Registration No.: 41,800
RADER, FISHMAN & GRAUER PLLC
The Lion Building
1233 20th Street, N.W., Suite 501
Washington, DC 20036
(202) 955-3750
Attorneys for Applicant
DC136869

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/863,316

1-4. (Cancelled)

5. (Presently Presented) A method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of sericin.

6. (Presently Presented) The method of Claim 5, wherein the weight average molecular weight of said sericin is from 5,000 to 100,000.

7. (Presently Presented) The method of Claim 5, where said administering step is comprised of administering the composition by a means selected from the group consisting of oral, intraperitoneal, intravenous, and topical means.

8. (Presently Presented) The method of Claim 6, where said administering step is comprised of administering the composition by a means selected from the group consisting of oral, intraperitoneal, intravenous, and topical means.

9. (Presently Presented) A method of inhibiting skin cancer in a mammal, comprising the step of administering to the mammal in need of treatment for inhibition of skin cancer a composition comprised of a hydrolysis product of sericin.

10. (Presently Presented) The method of Claim 9, wherein the weight average molecular weight of said hydrolysis product of sericin is from 5,000 to 100,000.

11. (Presently Presented) The method of Claim 9, where said administering step is comprised of administering the composition by a means selected from the group consisting of oral, intraperitoneal, intravenous, and topical means.

12. (Presently Presented) The method of Claim 10, where said administering step is comprised of administering the composition by a means selected from the group consisting of oral, intraperitoneal, intravenous, and topical means.